Tab D, No. 3
12/23/13

Status Determination Criteria for Penaeid Shrimp and Adjustments to the Shrimp FMP Framework Procedure

Shrimp Amendment 15

to the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, U.S. Waters Draft Options Paper

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ENVIRONMENTAL ASSESSMENT COVER SHEET

Name of Action

Draft Options Paper for Amendment 15 to the Shrimp Fishery Management Plan Addressing Changes to Status Determination Criteria and Framework Procedure, Including Environmental Assessment, Fishery Impact Statement, Regulatory Impact Review, and Regulatory Flexibility Act Analysis

Responsible Agencies and Contact Persons

Gulf of Mexico Fishery Management Council (Council)
2203 North Lois Avenue, Suite 1100
Tampa, Florida 33607
Morgan Kilgour (Morgan.Kilgour@gulfcouncil.org)

813-348-1630
813-348-1711 (fax)
gulfcouncil@gulfcouncil.org
http://www.gulfcouncil.org

National Marine Fisheries Service (Lead Agency)
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701
Susan Gerhart (Susan.Gerhart@noaa.gov)

727-824-5305
727-824-5308 (fax)
http://sero.nmfs.noaa.gov

Type of Action

( ) Administrative
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Summary/Abstract

ABBREVIATIONS USED IN THIS DOCUMENT

ABC	Acceptable biological catch
ACL	Annual catch limit
ACT	Annual catch target
AMs	Accountability measures
B	Biomass
B_{MSY}	Stock biomass level capable of producing an equilibrium yield of MSY
CI	Confidence interval
Council	Gulf of Mexico Fishery Management Council
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential fish habitat
EIS	Environmental impact statement
ESA	Endangered Species Act
F	Instantaneous rate of fishing mortality
FMP	Fishery Management Plan
GMFMC	Gulf of Mexico Fishery Management Council
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MFMT	Maximum fishing mortality threshold
MSST	Minimum stock size threshold
MSY	Maximum sustainable yield
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OFL	Overfishing level
OY	Optimum yield
RA	Regional Administrator
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office
SSC	Scientific and Statistical Committee

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CHAPTER 1. INTRODUCTION

1.1 Background

National Standard 1 in the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) states that conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield (OY) from each fishery. The Magnuson-Stevens Act defines OY as the amount of fish that will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities while taking into account the protection of marine ecosystems. Each fishery management plan (FMP) must specify objective and measurable status determination criteria for identifying when the fishery is overfished and undergoing overfishing. Overfishing occurs whenever the rate of removal (fishing mortality rate) is too high. A stock or stock complex is considered overfished when its population abundance (biomass) is too low.

The maximum fishing mortality threshold (MFMT) is the maximum rate of fishing mortality above which the stock is considered to be undergoing overfishing. The minimum stock size threshold (MSST) is the level of biomass below which the stock is considered to be overfished. By evaluating the fishing mortality rate and biomass of a stock in relation to MFMT and MSST, fishery managers can determine the status of a fishery at any given time and assess whether management measures are maintaining healthy stocks and achieving OY.

Maximum Sustainable Yield

The largest average catch that can continuously be taken from a stock under existing environmental conditions.

Optimum Yield

The harvest level for a species that achieves the greatest overall benefits, including economic, social, and biological considerations.

Maximum Fishing Mortality Threshold

One of the status determination criteria. It will usually be equivalent to the fishing mortality corresponding to the maximum sustainable yield. If current fishing mortality rates are above the fishing mortality threshold, overfishing is occurring.

Minimum Stock Size Threshold

Another of the status determination criteria. The minimum stock size at which rebuilding will occur within 10 years while fishing at the maximum fishing mortality threshold. If current stock size is below the stock size threshold the stock is overfished.

These parameters (MSST and MFMT) are difficult to apply to penaeid shrimp (brown, pink, and white) because they are short-lived and because the year-class strength of shrimp populations is influenced primarily by environmental factors rather than by effort and catch rates. For penaeid shrimp stocks, Amendment 13 to the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, U.S. Waters (Shrimp FMP) (GMFMC 2005) established MSST as the minimum parent stock size known to have produced maximum sustainable yield (MSY) the following year. The MSY is the largest long-term average catch that can be taken from a stock under prevailing conditions. The MSY for penaeid shrimp is difficult to apply and calculate because environmental variables control the stock size more than fishing mortality. Amendment 13 to the Shrimp FMP also established MFMT for each of the three penaeid species in terms of a parent stock level.

Historically, Gulf of Mexico (Gulf) shrimp stocks were assessed with a virtual population analysis (VPA), which reported output in terms of number of parents. The National Marine Fisheries Service (NMFS) has monitored the parent stock levels for all three penaeid species since 1970. The parent stock numbers for these species remained above the levels that would trigger the overfished or overfishing thresholds throughout this monitoring period; therefore, these stocks were not considered overfished or undergoing overfishing. However, scientists working for NMFS began investigating new stock assessment models for assessing the Gulf shrimp stocks (Hart and Nance 2010) after the 2007 pink shrimp stock assessment VPA incorrectly determined pink shrimp were undergoing overfishing because the model could not accommodate low effort (Nance 2008). The stock assessment analysts concluded that the Stock Synthesis model was the best choice for modeling Gulf shrimp. The Stock Synthesis model outputs parent stock size in terms of spawning biomass and also calculates a fishing mortality rate.

The Gulf of Mexico Fishery Management Council's (Council) Scientific and Statistical Committee (SSC) accepted this new model, but the outputs were not comparable to the established overfished and overfishing thresholds. This resulted in an unknown status for the three species relative to overfished and overfishing. Thus, with the acceptance of a new assessment modeling approach, MFMT and MSST must now be revised to be comparable to the model outputs and determine the status of the stocks.

Who's Who?

- Gulf of Mexico Fishery Management Council – Engages in a process to determine a range of actions and alternatives, and recommends action to the National Marine Fisheries Service
- National Marine Fisheries Service and Council staffs – Develop alternatives based on guidance from the Council, and analyze the environmental impacts of those alternatives
- Secretary of Commerce – Will approve, disapprove, or partially approve the amendment as recommended by the Council.

Framework procedures for a fishery management plan allow changes in specific management measures and parameters, such as overfished and overfishing thresholds, that can be made more efficiently than changes made through a full plan amendment. These changes are generally

considered routine updates based on a new stock assessment, survey results, or other similar information. Three framework procedures have been developed for the Shrimp FMP through various amendments, the most recent of which was implemented through the Generic Annual Catch Limit/Accountability Measures Amendment[1] (GMFMC 2011). Subsequent to that amendment, the Council determined that modifications to accountability measures should be included in the frameworks for their FMPs; therefore, the reef fish framework procedure was modified in Amendment 38 to the Reef Fish FMP (GMFMC 2012) and the coastal migratory pelagics (CMP) framework was modified in Amendment 20B to the CMP FMP (GMFMC/SAFMC 2013). Amendment 15 to the Shrimp FMP would make the same modifications to the recent shrimp framework[2]. In addition, this amendment would update language in that framework procedure that is now out of date.

1.2 Purpose and Need

Purpose for Action

The purpose of this amendment is to adjust stock status determination criteria to be consistent with the new population metrics for penaeid shrimp and modify the framework procedure for the shrimp FMP.

Need for Action

The needs for the proposed actions are to determine the overfished and overfishing status of each penaeid shrimp stock while using the best available science, and to streamline the management process of penaeid shrimp stocks.

1.3 History of Management

The Shrimp FMP, supported by an Environmental Impact Statement (EIS), was implemented on May 15, 1981. The FMP defined the shrimp fishery management unit to include brown shrimp (*Farfantepenaeus aztecus*), white shrimp (*Litopenaeus setiferus*), pink shrimp (*Farfantepenaeus duorarum*), royal red shrimp (*Pleoticus robustus*), seabobs (*Xiphopenaeus kroyeri*), and brown rock shrimp (*Sicyonia brevirostris*). The actions implemented through the FMP and its subsequent amendments, have addressed the following objectives:

1. Optimize the yield from shrimp recruited to the fishery.
2. Encourage habitat protection measures to prevent undue loss of shrimp habitat.

[1] Full title: Final Generic Annual Catch Limits/Accountability Measures Amendment for the Gulf of Mexico Fishery Management Council's Red Drum, Reef Fish, Shrimp, Coral and Coral Reefs Fishery Management Plans.
[2] Accountability measures are only established for royal red shrimp; penaeid shrimp are exempt from the requirement for accountability measures because they have annual lifecycles.

3. Coordinate the development of shrimp management measures by the Gulf of Mexico Fishery Management Council with the shrimp management programs of the several states, where feasible.
4. Promote consistency with the Endangered Species Act and the Marine Mammal Protection Act.
5. Minimize the incidental capture of finfish by shrimpers, when appropriate.
6. Minimize conflict between shrimp and stone crab fishermen.
7. Minimize adverse effects of obstructions to shrimp trawling.
8. Provide for a statistical reporting system.

The principal thrust of the plan was to enhance yield in volume and value by deferring harvest of small shrimp to provide for growth. Principle actions included: 1) establishing a cooperative Tortugas Shrimp Sanctuary with the state of Florida to close a shrimp trawling area where small pink shrimp comprise the majority of the population most of the time; 2) a cooperative 45-day seasonal closure with the state of Texas to protect small brown shrimp emigrating from bay nursery areas; and 3) a seasonal closure of an area east of the Dry Tortugas to avoid gear conflicts with stone crab fisherman.

Amendment 1/environmental assessment (EA)(1981). This amendment provided the Regional Administrator (RA) of the NMFS Southeast Regional Office with the authority (after conferring with the GMFMC) to adjust by regulatory amendment the size of the Tortugas Sanctuary or the extent of the Texas closure, or to eliminate either closure for one year.

Amendment 2/EA (1983), updated catch and economic data in the FMP.

Amendment 3/EA (1984) resolved a shrimp-stone crab gear conflict on the west-central coast of Florida.

Amendment 4/EA (1988), identified problems that developed in the fishery and revised the objectives of the FMP accordingly. The annual review process for the Tortugas Sanctuary was simplified, and the Council and RA review for the Texas closure was extended to February 1. A provision that white shrimp taken in the exclusive economic zone (EEZ) be landed in accordance with a state's size/possession regulations to provide consistency and facilitate enforcement with the state of Louisiana was to have been implemented at such time when Louisiana provided for an incidental catch of undersized white shrimp in the fishery for seabobs. This provision was disapproved by the NMFS with the recommendation that it be resubmitted under the expedited 60-day Secretarial review schedule after Louisiana provided for a bycatch of undersized white shrimp in the directed fishery for seabobs. This resubmission was made in February of 1990 and applied to white shrimp taken in the EEZ and landed in Louisiana. It was approved and implemented in May of 1990.

In July 1989, the NMFS published revised guidelines for FMPs that interpretatively addressed the Magnuson-Stevens Act (then called the Magnuson Fishery Conservation and Management Act) National Standards (50 CFR Part 602). These guidelines required each FMP to include a scientifically measurable definition of overfishing and an action plan to arrest overfishing should it occur.

In 1990, Texas revised the period of its seasonal closure in Gulf waters from June 1 to July 15 to May 15 to July 15. The FMP did not have enough flexibility to adjust the cooperative closure of federal waters to accommodate this change, thus an amendment was required.

Amendment 5/EA (1991), defined overfishing for Gulf brown, pink, and royal red shrimp and provided for measures to restore overfished stocks if overfishing should occur. Action on the definition of overfishing for white shrimp was deferred, and seabobs and rock shrimp were deleted from the management unit. The duration of the seasonal closure to shrimping off Texas was adjusted to conform with the changes in state regulations.

Amendment 6/EA (1992), eliminated the annual reports and reviews of the Tortugas Shrimp Sanctuary in favor of monitoring and an annual stock assessment. Three seasonally opened areas within the sanctuary continued to open seasonally, without need for annual action. A proposed definition of overfishing of white shrimp was rejected by NMFS as not being based on the best available data.

Amendment 7/EA (1994), defined overfishing for white shrimp and provided for future updating of overfishing indices for brown, white, and pink shrimp as new data become available. A total allowable level of foreign fishing for royal red shrimp was eliminated; however, a redefinition of overfishing for this species was disapproved.

Amendment 8/EA (1995), and implemented in early 1996, addressed management of royal red shrimp. It established a procedure that would allow total allowable catch for royal red shrimp to be set up to 30% above MSY for no more than two consecutive years so that a better estimate of MSY could be determined. This action was subsequently negated by the 1996 Sustainable Fisheries Act (SFA) amendment to the Magnuson-Stevens Act that defined overfishing as a fishing level that jeopardizes the capacity of a stock to maintain MSY, and does not allow OY to exceed MSY.

Amendment 9, supported by a Supplemental Environmental Impact Statement (SEIS) (1997), required the use of a NMFS certified bycatch reduction device (BRD) in shrimp trawls used in the EEZ from Cape San Blas, Florida (85° 30' W. Longitude) to the Texas/Mexico border, and provided for the certification of BRDs and specifications for the placement and construction. The purpose of this action was to reduce the bycatch mortality of juvenile red snapper by 44% from the average mortality for the years 1984 through 1989. This amendment exempted shrimp trawls fishing for royal red shrimp seaward of the 100-fathom contour, as well as groundfish and butterfish trawls. It also excluded small try nets and no more than two ridged frame roller trawls of limited size. Amendment 9 also provided mechanisms to change the bycatch reduction criterion and to certify additional BRDs.

Amendment 10/EA (2002), required BRDs in shrimp trawls used in the Gulf east of Cape San Blas, Florida. Certified BRDs for this area are required to demonstrate a 30% reduction by weight of finfish.

Amendment 11/EA (2001), required owners and operators of all vessels harvesting shrimp from the EEZ of the Gulf to obtain a federal commercial vessel permit. This amendment also prohibited the use of traps to harvest royal red shrimp from the Gulf and the transfer royal red shrimp at sea.

Amendment 12/EA (2001), was included as part of the Generic Essential Fish Habitat (EFH) Amendment that established EFH for shrimp in the Gulf.

Amendment 13/EA (2005), established an endorsement to the existing federal shrimp vessel permit for vessels harvesting royal red shrimp; defined the overfishing threshold and the overfished condition for royal red shrimp; defined MSY and OY for the penaeid shrimp stocks in the Gulf; established bycatch reporting methodologies and improved collection of shrimping effort data in the EEZ; required completion of a Gulf Shrimp Vessel and Gear Characterization Form; established a moratorium on the issuance of commercial shrimp vessel permits; and required reporting and certification of landings during the moratorium.

Amendment 14/EIS, (2007), was a joint amendment with Reef Fish Amendment 27. It established a target red snapper bycatch mortality goal for the shrimp fishery in the western Gulf and defined seasonal closure restrictions that can be used to manage shrimp fishing efforts in relation to the target red snapper bycatch mortality reduction goal. It also established a framework procedure to streamline the management of shrimp fishing effort in the western Gulf.

CHAPTER 2. MANAGEMENT ALTERNATIVES

2.1 Action 1 – Modify Stock Status Determination Criteria for Penaeid Shrimp Stocks (Brown, White, and Pink)

Action 1.1 – Modify the Overfishing Threshold for Penaeid Shrimp

Alternative 1: No Action – The overfishing threshold is defined as a rate of fishing that results in the parent stock number being reduced below the maximum sustainable yield (MSY) minimum levels listed below:

a. Brown shrimp- 125 million individuals, age 7+ months during the November through February period
b. White shrimp- 330 million individuals, age 7+ months during the May through August period
c. Pink shrimp- 100 million individuals, age 5+ months during the July through June year.

Alternative 2: The overfishing threshold is the maximum fishing mortality threshold (MFMT), defined as the annual apical maximum fishing mortality (F)-value from 1984-2012, including the 95% confidence limits. The values for each species will be updated every X years through the framework procedure, unless changed earlier by the Gulf of Mexico Fishery Management Council.

a. Brown shrimp: 3.54 ± 0.14
b. White shrimp: 0.76 ± 0.01
c. Pink shrimp: 0.20 ± 0.03

*Note: the IPT recommends 5 years as a reasonable time period because this is an annual stock.

Alternative 3: The overfishing threshold is the MFMT, defined as the annual model averaged apical maximum fishing mortality (F)-value from 1984-2012, without confidence limits. These values for each species will remain until changed through a framework procedure, as recommended by the Gulf of Mexico Fishery Management Council.

a. Brown shrimp: 3.54
b. White shrimp: 0.76
c. Pink shrimp: 0.20

Discussion: Historically, under optimum environmental conditions and maximum effort the maximum probable catch for penaeid (brown, white, and pink) shrimp has been estimated using virtual population analysis (VPA). Recently, NMFS has changed their model from VPA to the Stock Synthesis model to determine Gulf shrimp status, after the VPA was determined inadequate to account for the low fishing effort for pink shrimp (Nance 2008; Hart and Nance 2010) designating the stock as overfished, when later determinations were that the stock was not overfished. Evaluations of new stock assessment models determined that the Stock Synthesis model was the best model. The new Stock Synthesis model produces overfishing estimates as fishing mortality rates (F), which are incompatible with current overfishing thresholds.

The guidelines for National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) require one of two thresholds be developed to determine if a stock is undergoing overfishing: the maximum fishing mortality threshold (MFMT) or the overfishing limit (OFL). The MFMT is the maximum rate of fishing mortality above which the stock is considered to be undergoing overfishing. The OFL is the catch level associated with fishing at MFMT. Because the model produces outputs in terms of fishing mortality rates, MFMT is the appropriate threshold to use for penaeid shrimp species. The Gulf of Mexico Fishery Management Council's (Council's) Scientific and Statistical Committee (SSC) approved the use of MFMTs for the overfishing thresholds (Figures 1a-1c).

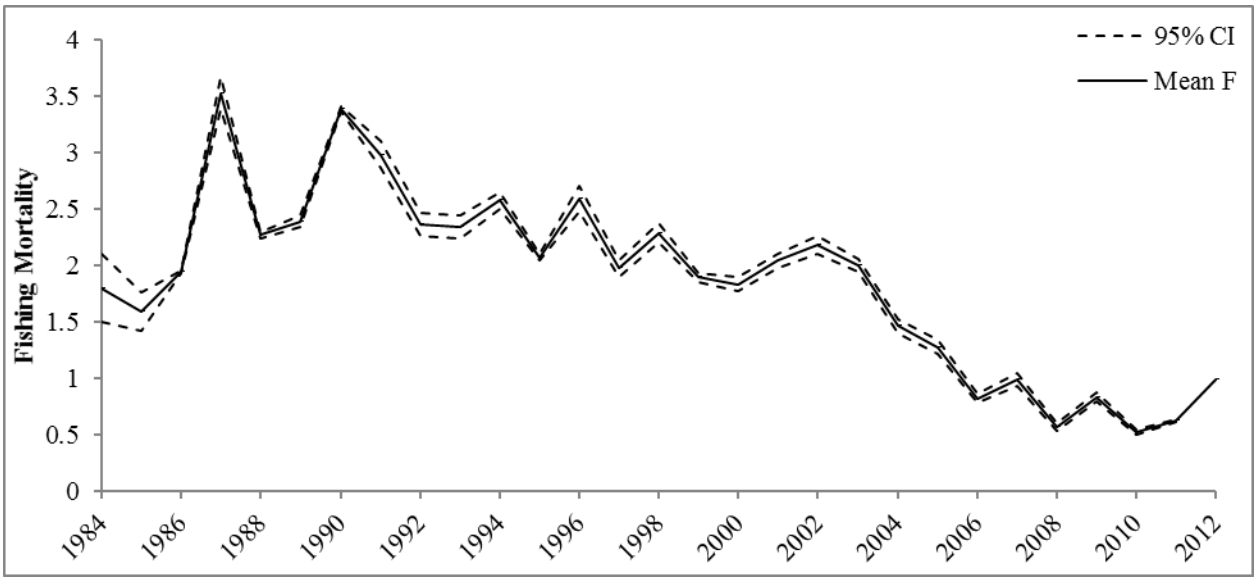

Figure 2.1.1. Brown shrimp F-values modeled using the Stock Synthesis Model with data 1984-2012. The solid line is the mean F-value calculated for brown shrimp and the dashed lines are the 95% confidence limits about the mean. For Action 1.1a, the highest F-value was used (**Alternative 2** and **3**) with the corresponding confidence limits (**Alternative 2**).

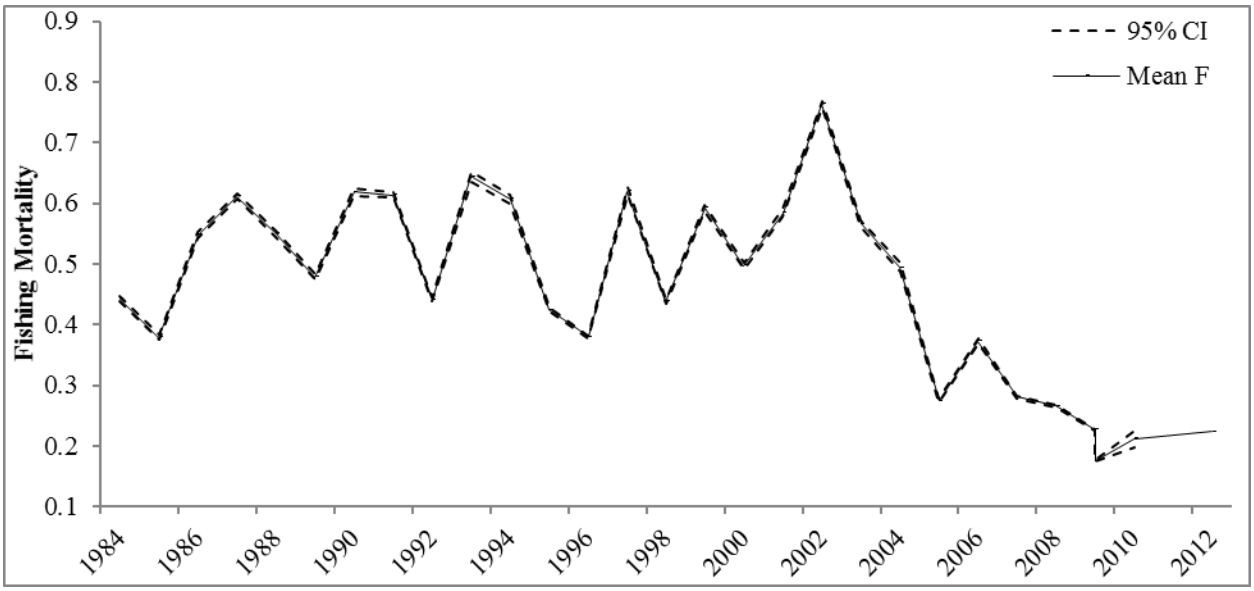

Figure 2.1.2. White shrimp F-values modeled using the Stock Synthesis Model with data 1984-2012. The solid line is the mean F-value calculated for white shrimp and the dashed lines are the 95% confidence limits about the mean. For Action 1.1b, the highest F-value was used (**Alternative 2** and **3**) with the corresponding confidence limits (**Alternative 2**).

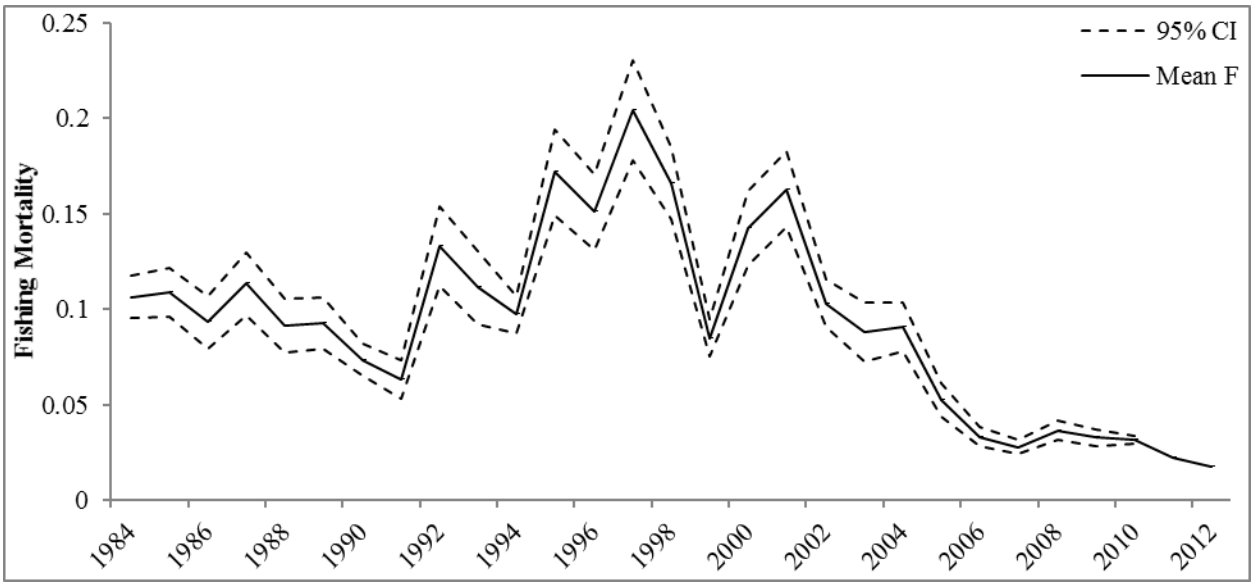

Figure 2.1.3. Pink shrimp F-values modeled using the Stock Synthesis Model with data 1984-2012. The solid line is the mean F-value calculated for pink shrimp and the dashed lines are the 95% confidence limits about the mean. For Action 1.1c, the highest F-value was used (**Alternative 2** and **3**) with the corresponding confidence limits (**Alternative 2**).

Alternative 1 would continue to use overfishing thresholds based on parent stock levels that are incompatible with current population metrics produced by model assessments and are based on the estimated number of individuals harvested. This would leave the overfishing status as unknown.

Alternative 2 would establish the MFMTs as the highest fishing mortality (F)-value for each species currently produced by the Stock Synthesis model. The apical F-value is the largest value of fishing mortality estimated by the model over the course of the model data years. The model is stochastic - when new data are added, the apical F-value may change slightly. Using the 95% confidence limits to define a range about the highest F-value is intended to address this variation and reduce the risk of model-driven overfishing designations. Additionally, the values for each species and subsequent range should be re-evaluated periodically because of this variation in the model when new data is added. This re-evaluation would ensure the MFMT is reflective of the most current data. The Council may wish to further evaluate an F-value above MFMT for a stock in any given year to determine if overfishing is actually occurring; if so, this procedure should be added to the alternative.

Alternative 3 is similar to **Alternative 2**, but does not take into account the variability of the model (confidence limits). With this alternative, the MFMTs may need to be revaluated by the Council and SSC more often than every five years if the F-value of a year exceeds the F-value stated in the document. Because the alternative does not account for the sensitivity of the model parameters to new data, it is more likely to result in an overfishing determination than **Alternative 2**.

Penaeid shrimp stocks are influenced primarily by environmental conditions and are annual crops, thus, MSY is difficult to predict. In Amendment 13 (GMFMC 2005), MSY was defined as the highest and lowest landings values taken annually from 1990-2000 because a true numerical value cannot be calculated.

Action 1.2 – Modify the overfished threshold for penaeid shrimp

Alternative 1: No Action - An overfished condition would result when a parent stock number falls below one-half of the overfishing definition, i.e.:

a. Brown Shrimp - 63 million individuals, age 7+ months during the November through February period.
b. White Shrimp - 165 million individuals, age 7+ months during the May through August period.
c. Pink Shrimp - 50 million individuals, age 5+ months during the July through June year.

Alternative 2: The overfished threshold is the minimum sustainable stock threshold (MSST), defined as the total annual spawning biomass, i.e., the sum of the monthly spawning biomass estimates from 1984-2012, including the 95% confidence limits. The values for each species will be updated every X years through the framework procedure, unless changed earlier by the council.

a. Brown shrimp: 11,166 ± 222 metric tons of tails
b. White shrimp: 125,535 ± 306 metric tons of tails
c. Pink shrimp: 17,502 ± 3,467 metric tons of tails

* Note: the IPT recommends 5 years as a reasonable time period because this is an annual stock.

Alternative 3: The overfished threshold is the MSST, defined as the total annual spawning biomass, i.e., the sum of the monthly spawning biomass estimates, from 1984-2012, as recommended by the SSC, without confidence limits. The values for each species will remain until changed through a framework procedure, as recommended by the Gulf of Mexico Fishery Management Council.

a. Brown shrimp: 11,166 metric tons of tails
b. White shrimp: 125,535 metric tons of tails
c. Pink shrimp: 17,502 metric tons of tails

Discussion:

The SSC approved setting the overfished limits at the minimum spawning biomass annual data points (from 1984-2011) or MSST (**Alternative 2** and **Alternative 3**) in 2012 and the Council accepted the updated values based on data through 2012 at their October 2013 meeting. The MSST is the level of biomass below which the stock is considered to be overfished. The MSST is a value based on the landings of the parent stock, while the MFMT is based on fishing mortality rates (F). By evaluating the biomass of a stock in relation to MSST, fishery managers can determine the status of a fishery at any given time and assess whether management measures are maintaining healthy stocks and achieving OY. The Council's SSC approved the use of MSSTs for the overfished thresholds (Figures 2a-2c).

Alternative 1 would continue to use an overfished threshold that is incompatible with current model outputs and would leave the overfished condition of the three penaeid shrimp species

designation as unknown.

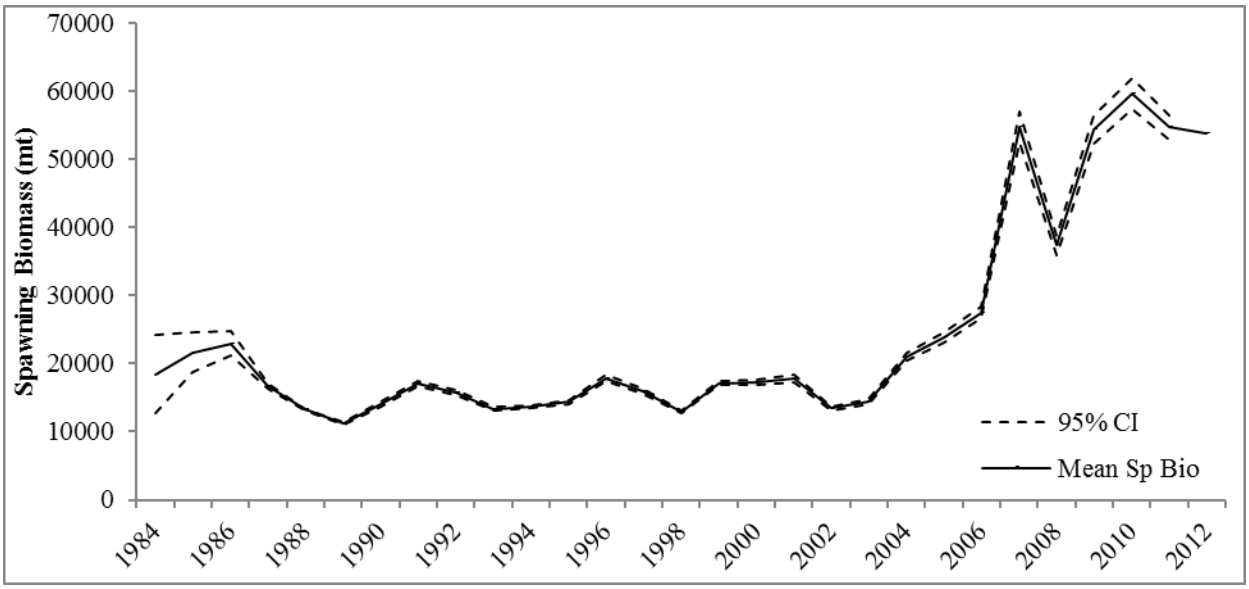

Figure 2.2.1. Brown shrimp MSST modeled using the Stock Synthesis Model with data 1984-2012. The solid line is the mean spawning stock biomass calculated for brown shrimp and the dashed lines are the 95% confidence limits about the mean. For Action 1.2, the lowest MSST value was used (**Alternatives 2** and **3**) with the corresponding confidence limits (**Alternative 2**).

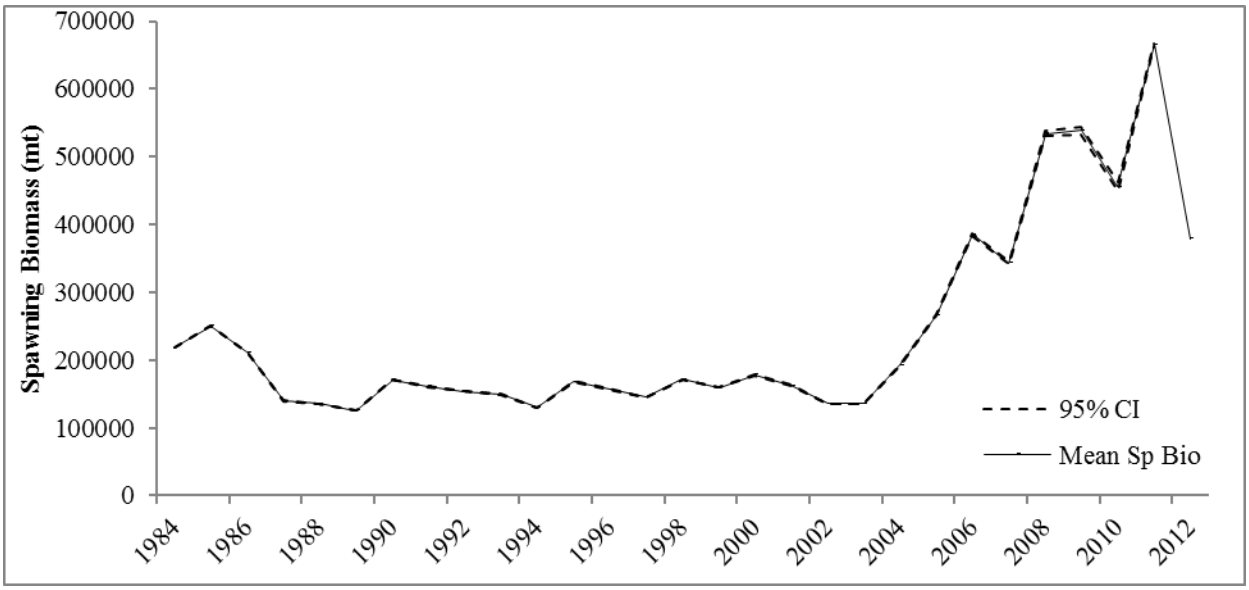

Figure 2.2.2. White shrimp MSST modeled using the Stock Synthesis Model with data 1984-2012. The solid line is the mean spawning stock biomass calculated for white shrimp and the dashed lines are the 95% confidence limits about the mean. For Action 1.2, the lowest MSST value was used (**Alternatives 2** and **3**) with the corresponding confidence limits (**Alternative 2**).

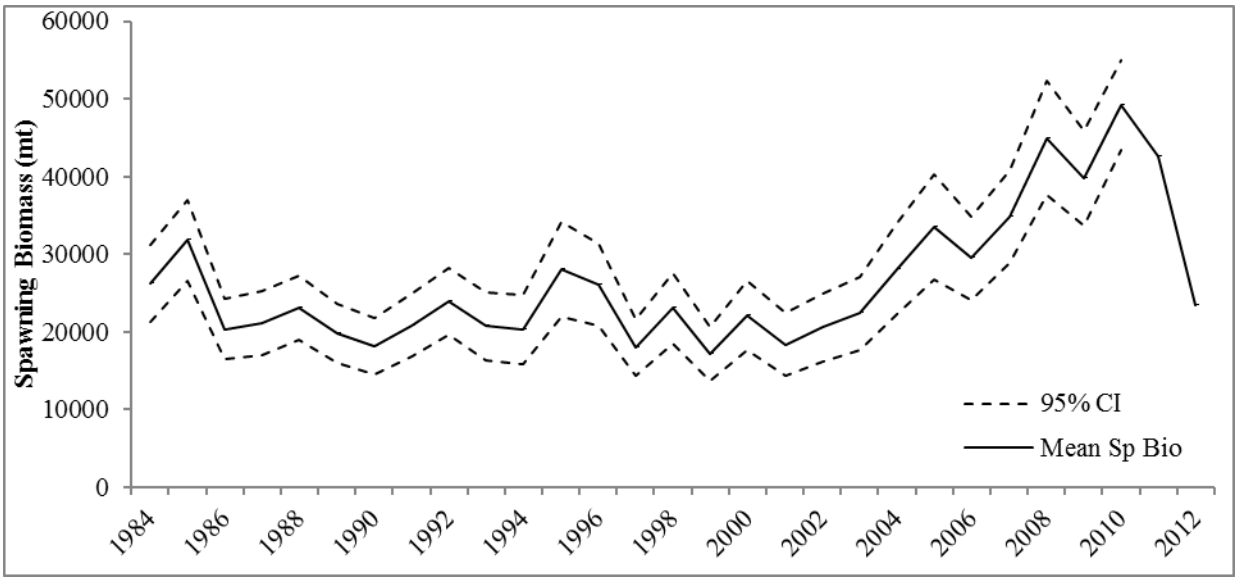

Figure 2.2.3. Pink shrimp MSST modeled using the Stock Synthesis Model with data 1984-2012. The solid line is the mean spawning stock biomass calculated for pink shrimp and the dashed lines are the 95% confidence limits about the mean. For Action 1.2, the lowest MSST value was used (**Alternatives 2** and **3**) with the corresponding confidence limits (**Alternative 2**).

Alternative 2 would be the lowest MSST value for each species currently produced by the Stock Synthesis model ± 95% confidence limit. Because the model has slight fluctuations in values when new data are added, the use of the 95% confidence limits to define a range about the lowest MSST value is intended to reduce the risk of model-driven overfished designations. Because this value and subsequent range may fluctuate with the addition of data, it is appropriate that the MSST values and 95% confidence limits be re-assessed periodically. The Council may wish to further evaluate a value below MSST for a stock in any given year to determine if a stock is overfished; if so, this procedure should be added to the alternative.

Alternative 3 is similar to **Alternative 2**, but does not take into account the variability of the model. Because this alternative does not take into account the sensitivity of the model when new data are added, it is more likely that a stock could be determined to be overfished.

2.2 Action 2 – Modify the Shrimp FMP Framework Procedure

Alternative 1. No Action – Do not modify the shrimp management measures framework procedure adopted through the Generic Annual Catch Limits (ACL)/Accountability Measures (AM) Amendment.

Alternative 2. Modify the shrimp management measures framework procedure to include changes to accountability measures through the standard documentation process for open framework actions, and make editorial changes to the framework procedure to reflect changes to the Council advisory committees and panels. Accountability measures that could be implemented or changed would include:

In-season accountability measures

- Closure and closure procedures
- Trip limit implementation or change
- Implementation of gear restrictions

Post-season accountability measures

- Adjustment of season length
- Implementation of closed seasons/time periods
- Adjustment or implementation of trip or possession limits
- Reduction of the ACL/ACT to account for the previous year overage
- Revoking a scheduled increase in the ACL/ACT if the ACL was exceeded in the previous year
- Implementation of gear restrictions
- Reporting and monitoring requirements

Alternative 3. Modify the shrimp management measures framework procedure to include changes to accountability measures through the standard documentation process for open framework actions, and make editorial changes to the framework procedure to reflect changes to the Council advisory committees and panels. Accountability measures that could be changed would include:

In-season accountability measures

- Closure procedures
- Trip limit reductions or increases

Post-season accountability measures

- Adjustment of season length
- Adjustment of trip or possession limits

Discussion:

The Council currently has three different regulatory vehicles for addressing fishery management issues. First, they may develop a fishery management plan or plan amendment to establish management measures. The amendment process can take one to three years depending on the analysis needed to support the amendment actions. Second, the Council may vote to request an interim or emergency rule that could remain effective for 180 days with the option to extend it

for an additional 186 days. Interim and emergency rules are only meant as short-term management tools while permanent regulations are developed through an amendment. Third, the Council may prepare a framework action based on a predetermined procedure that allows changes to specific management measures and parameters. Typically, framework actions take less than a year to implement, and, like plan amendments, are effective until amended.

Three framework procedures have been developed for the shrimp FMP: 1) Amendment 9 (GMFMC 1997) established a framework procedure for modifying bycatch reduction criteria, bycatch reduction device (BRD) certification and decertification criteria, and testing protocols for certifying BRDs; 2) Amendment 14 (GMFMC 2007) established a framework procedure for adjusting shrimp target effort and closed seasons relative to red snapper; and 3) the Generic ACL/AM Amendment (GMFMC 2011) established a framework procedure to change other management measures. Subsequent to the last amendment, the Council determined that modifications to AMs should be included in the frameworks for all of their FMPs; therefore, the reef fish framework procedure was modified in Amendment 38 to the Reef Fish FMP and the coastal migratory pelagics (CMP) framework was modified in Amendment 20B to the CMP FMP. The current action proposes to make those same changes to the shrimp framework established in the Generic ACL/AM Amendment as indicated in the highlighted sections below. The other two framework procedures would remain unchanged.

Proposed Language for Updated Framework Procedure

This framework procedure provides standardized procedures for implementing management changes pursuant to the provisions of the fishery management plan (FMP). There are two basic processes, the open framework process and the closed framework process. Open frameworks address issues where there is more policy discretion in selecting among various management options developed to address an identified management issue, such as changing a size limit to reduce harvest. Closed frameworks address much more specific factual circumstances, where the FMP and implementing regulations identify specific action to be taken in the event of specific facts occurring, such as closing a sector of a fishery after their quota has been harvested.

Open Framework:

1. Situations under which this framework procedure may be used to implement management changes include the following:
    a. A new stock assessment resulting in changes to the overfishing limit, acceptable biological catch, or other associated management parameters.
    In such instances the Council may, as part of a proposed framework action, propose an annual catch limit (ACL) or series of ACLs and optionally an annual catch target (ACT) or series of ACTs, as well as any corresponding adjustments to maximum sustainable yield (MSY), optimum yield (OY), and related management parameters.
    b. New information or circumstances.

The Council will, as part of a proposed framework action, identify the new information and provide rationale as to why this new information indicates that management measures should be changed.

c. Changes are required to comply with applicable law such as Magnuson-Stevens Act (MSA), Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), or are required as a result of a court order.
In such instances the Regional Administrator will notify the Council in writing of the issue and that action is required. If there is a legal deadline for taking action, the deadline will be included in the notification.

2. Open framework actions may be implemented in either of two ways, abbreviated documentation, or standard documentation process.
   a. Abbreviated documentation process. Regulatory changes that may be categorized as a routine or insignificant may be proposed in the form of a letter or memo from the Council to the Regional Administrator containing the proposed action, and the relevant biological, social and economic information to support the action. If multiple actions are proposed, a finding that the actions are also routine or insignificant must also be included. If the Regional Administrator concurs with the determination and approves the proposed action, the action will be implemented through publication of appropriate notification in the Federal Register. Actions that may be viewed as routine or insignificant include, among others:
      i. Reporting and monitoring requirements,
      ii. Permitting requirements,
      iii. Gear marking requirements,
      iv. Vessel marking requirements,
      v. Restrictions relating to maintaining fish in a specific condition (whole condition, filleting, use as bait, etc.),
      vi. Size limit changes of not more than 10% of the prior size limit,
      vii. Vessel trip limit changes of not more than 10% of the prior trip limit,
      viii. Closed seasons of not more than 10% of the overall open fishing season,
      ix. Restricted areas (seasonal or year-round) affecting no more than a total of 100 square nautical miles,
      x. Respecification of ACL, ACT or quotas that had been previously approved as part of a series of ACLs, ACTs or quotas,
      xi. Specification of MSY, OY, and associated management parameters (such as overfished and overfishing definitions) where new values are calculated based on previously approved specifications,
      xii. Gear restrictions, except those that result significant changes in the fishery, such as complete prohibitions on gear types,
      xiii. Quota changes of not more than 10%, or retention of portion of an annual quota in anticipation of future regulatory changes during the same fishing year,
   b. Standard documentation process. Regulatory changes that do not qualify as a routine or insignificant may be proposed in the form of a framework document with supporting analyses. Non routine or significant actions that may be implemented under a framework action include:

i. Specification of ACTs or sector ACTs, and modifications to ACL/ACT control rule,
ii. Specification of ABC and ABC control rules,
iii. Rebuilding plans and revisions to approved rebuilding plans,
iv. Changes specified in section 4(a) that exceed the established thresholds.
v. Changes to accountability measures including:

In-season accountability measures

1. Closures and closure procedures
2. Trip limit changes
3. Implementation of gear restrictions

Post-season accountability measures

4. Adjustment of season length
5. Implementation of closed seasons/time periods
6. Adjustment or implementation of trip or possession limits
7. Reduction of the ACL/ACT to account for the previous year overage
8. Revoking a scheduled increase in the ACL/ACT if the ACL was exceeded in the previous year
9. Implementation of gear restrictions
10. Reporting and monitoring requirements

3. The Council will initiate the open framework process to inform the public of the issues and develop potential alternatives to address the issues. The framework process will include the development of documentation and public discussion during at least one Council meeting.

4. Prior to taking final action on the proposed framework action, the Council may convene its SSC, SEP, or AP advisory committees and panels, as appropriate, to provide recommendations on the proposed actions.

5. For all framework actions, the Council will provide the letter, memo, or the completed framework document along with proposed regulations to the Regional Administrator in a timely manner following final action by the Council.

6. For all framework action requests, the Regional Administrator will review the Council's recommendations and supporting information and notify the Council of the determinations, in accordance with the MSA and other applicable law.

Closed Framework:

1. Consistent with existing requirements in the FMP and implementing regulations, the Regional Administrator is authorized to conduct the following framework actions through appropriate notification in the Federal Register:
   a. Close or adjust harvest any sector of the fishery for a species, sub-species, or species group that has a quota or sub-quota at such time as projected to be necessary to prevent the sector from exceeding its sector-quota for the remainder of the fishing year or sub-quota season,

b. Reopen any sector of the fishery that had been prematurely closed,
c. Implement accountability measures, either in-season or post-season.

Alternative 1 would retain the current shrimp management measures framework procedure without any changes. This framework procedure was established in the Generic ACL/AM Amendment (GMFMC 2011) and provides the Council and NMFS the flexibility to respond quickly to changes in the shrimp fishery. The framework has both open and closed components. The open components provide more policy discretion, whereas the closed components address more specific, well-defined circumstances. Measures that can be changed under the procedure are identified, as well as the appropriate process needed for each type of change.

Alternative 2 and **Alternative 3** would allow changes to accountability measures under the standard documentation process of the open framework procedure, and would amend language in the framework that refers to the Socioeconomic Panel, which no longer exists under that name due to reorganization of the SSC. Each alternative contains a list of the specific accountability measures that could be changed through the process. **Alternative 2** is a more comprehensive list that includes all accountability measures currently in place. **Alternative 3** would limit the types of accountability measures that could be changed through a framework action. This part of the framework procedure would only apply to royal red shrimp, because penaeid shrimp are not required to have accountability measures.

It is important to note that some items included in **Alternative 2** and **Alternative 3** are currently listed in the abbreviated process section of the open framework procedure as management measures. Although similar, accountability measures differ from management measures because they are tied in some way to the ACL. For example, through the abbreviated process, the Council and NMFS may implement closed seasons of not more than 10% of the overall open fishing season. The reason for the closed season may be to protect spawning populations or to extend a fishing season later into the year. This is a management measure and would remain in effect until changed through another framework action. On the other hand, **Alternative 2** would allow the Council and NMFS to implement a measure through the standard process whereby the Regional Administrator has the authority to set a closed season in the year following a year in which the ACL is exceeded. In this case, the reason for the closed season is to prevent another overage of the ACL. This is an accountability measure and the closed season would only be in effect temporarily. Therefore, the current framework allows changes to management measures, but the proposed alternatives would allow changes to accountability measures, including adding new accountability measures to the existing suite.

CHAPTER 3. REFERENCES

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GMFMC. 2007. Final amendment 27 to the reef fish fishery management plan and final amendment 14 to the shrimp fishery management plan including supplemental environmental impact statement, regulatory impact review, and regulatory flexibility analysis. Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, FL 33607. 480 pp. http://www.gulfcouncil.org/Beta/GMFMCWeb/downloads/Final%20RF%20Amend%2027-%20Shrimp%20Amend%2014.pdf

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Hart, R.A., and J.M. Nance. 2010. Gulf of Mexico pink shrimp assessment modeling update: from a static VPA to an integrated assessment model, Stock Synthesis. NOAA Technical Memorandum NMFS-SEFSC-604. 32 pp. http://docs.lib.noaa.gov/noaa_documents/NMFS/SEFSC/TM_NMFS_SEFSC/NMFS_SEFSC_TM_604.pdf

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